

No. 686,992.

Patented Nov. 19, 1901.

C. H. SHEPARD.
TYPE WRITING MACHINE.

(Application filed Apr. 11, 1898.)

(No Model.)

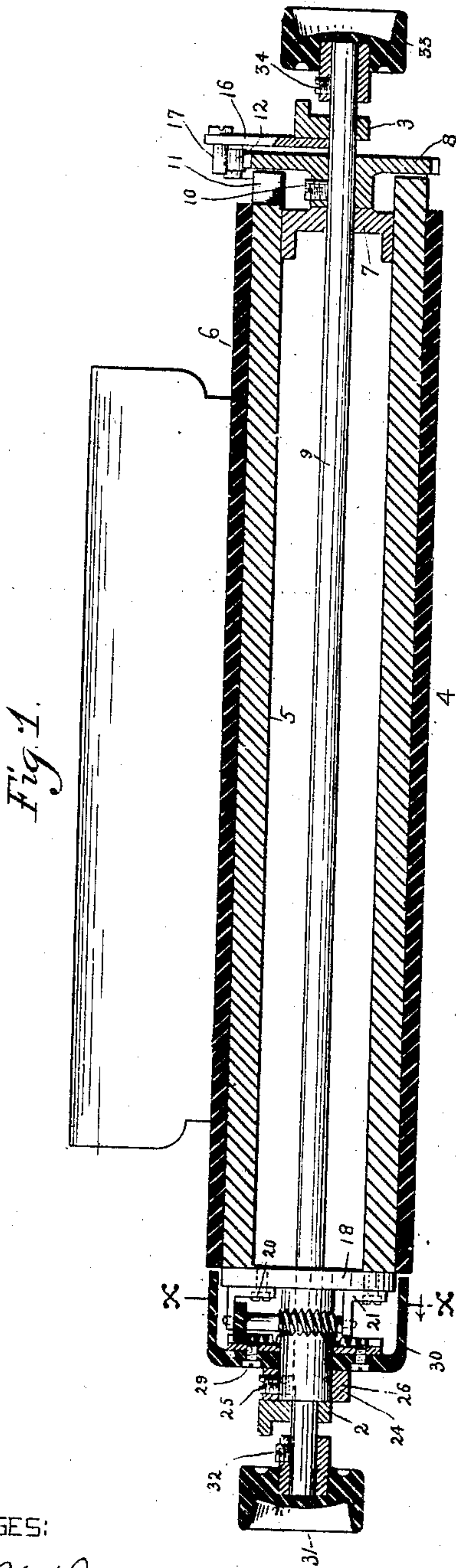


Fig. 5.

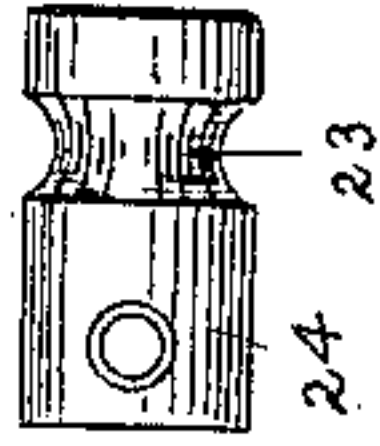


Fig. 2.

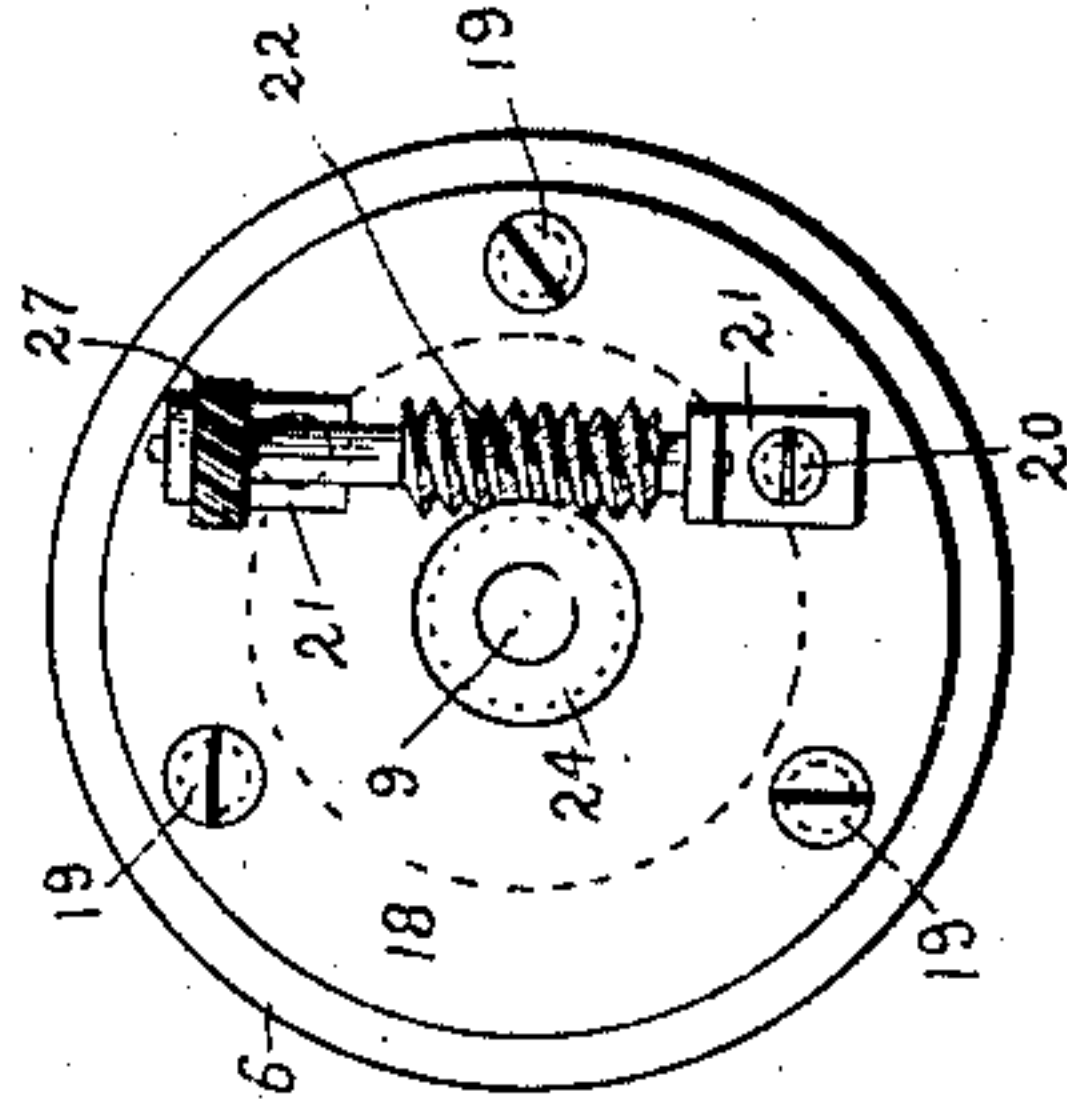


Fig. 4.

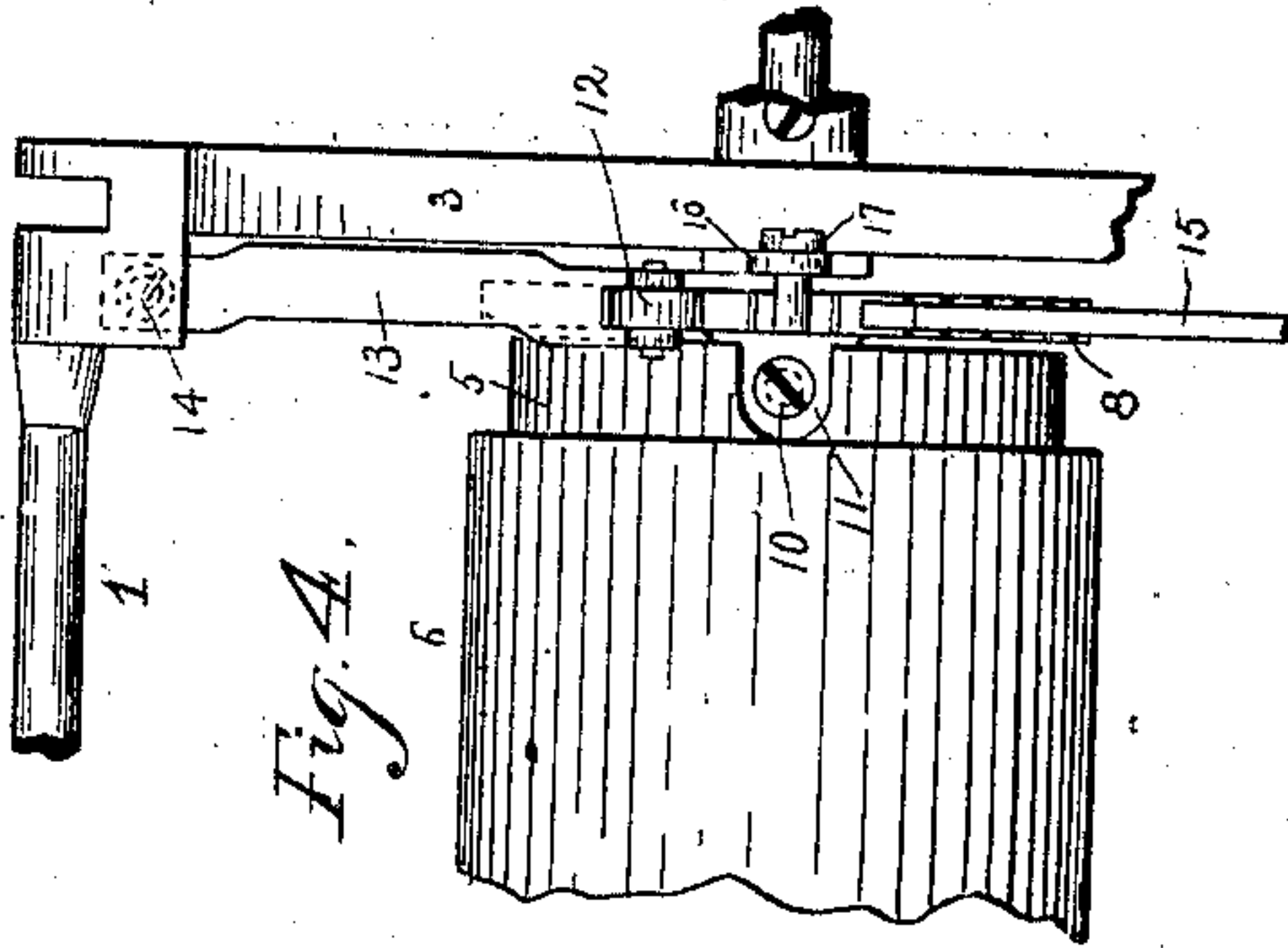


Fig. 3.

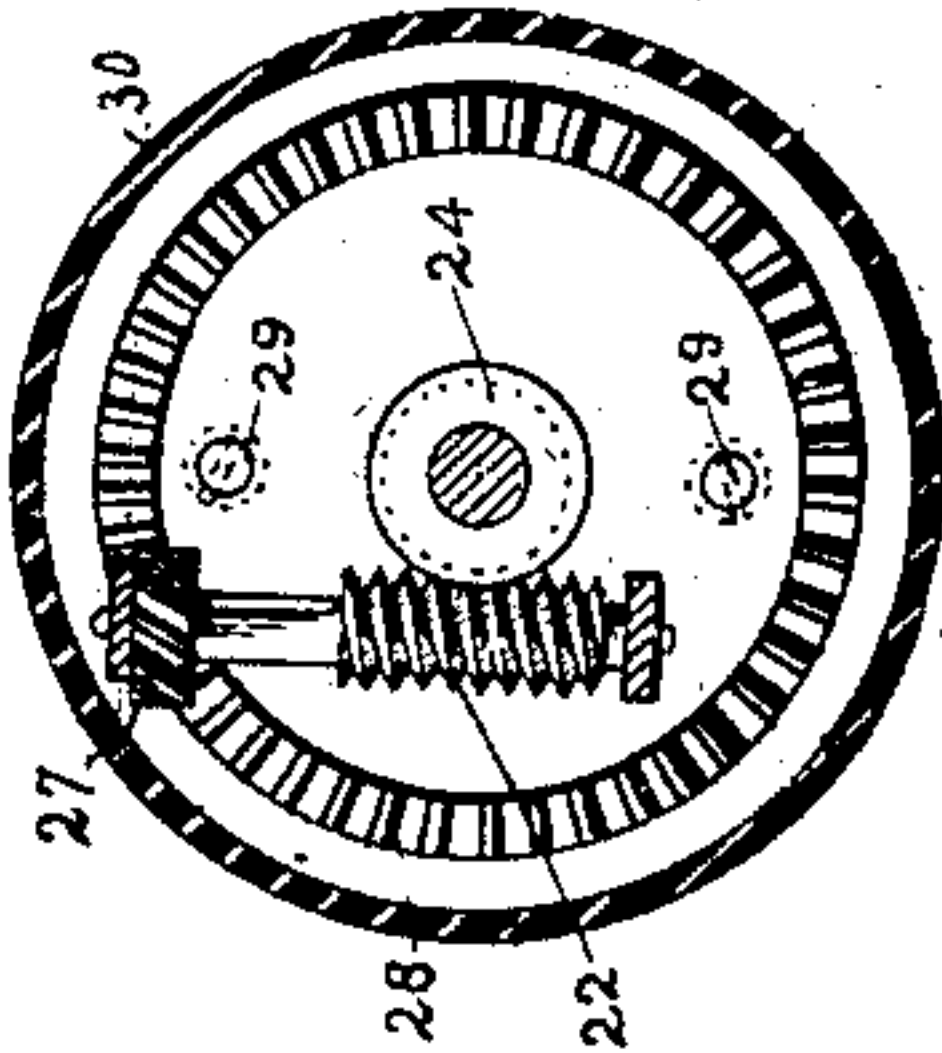
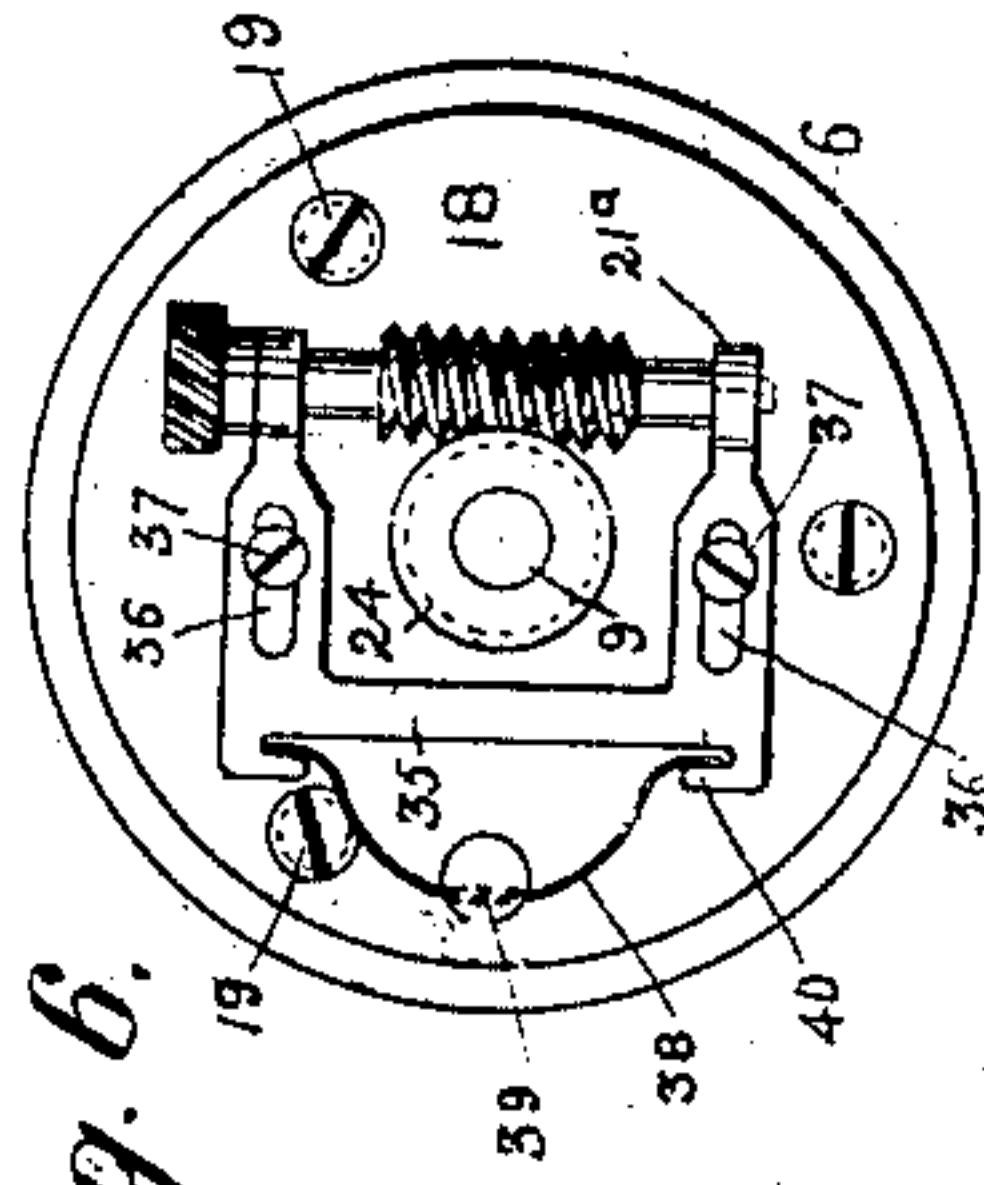


Fig. 6.



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TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 686,992, dated November 19, 1901.

Application filed April 11, 1898. Serial No. 677,121. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. SHEPARD, a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, and city and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to means for rotating a cylindrical platen either through minute arcs or large distances without disturbing or specially manipulating the line-spacing mechanism, so that the operator may readily bring a ruled line or a blank space in a printed sheet to the printing-point, thus facilitating the work of type-writing upon ruled paper and blank forms wherein the lines are ruled and the blank spaces are located at distances apart unequal to the line-feed distances determined by the line-spacing mechanism; and my invention has for its main objects to provide an efficient mechanism for accomplishing the above purpose and one in which the same is always in position to act instantly upon the turning of a finger wheel or piece and without the necessity of releasing any clutch, lock, friction-gear, or the like.

To these main ends my invention consists in the various features of construction and combinations of devices hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a central vertical longitudinal section of a portion of a type-writing machine embodying my improvements. Fig. 2 is a left-hand end view of the platen detached from its frame or carriage and with the operating-wheel removed. Fig. 3 is a vertical cross-section taken at the line *xx* of Fig. 1 and looking in the direction of the arrow. Fig. 4 is a partial plan view of the right-hand end of the platen and platen-frame and showing also the line-spacing pawl, &c. Fig. 5 is a plan view of the work wheel or sleeve detached; and Fig. 6 is an end elevation of a modification, showing a different mode of mounting the worm.

In the several views the same part will be found designated by the same numeral of reference.

1 designates the back bar, 2 the left-hand

end bar, and 3 the right-hand end bar, of the platen frame or carrier of a Remington typewriter. The platen in its entirety is designated by the numeral 4, and in this instance comprises, as usual, a hollow wooden core and a rubber sheath or cover 6. At the right-hand end of the platen is inserted a cylindrical head or platen-bearing 7, and adjacent thereto is a line-spacing ratchet-wheel 8, which is secured upon the platen shaft or axle 9 by means of a set-screw 10, passing through the hub of the ratchet-wheel and bearing upon the surface of said shaft, which at its outer ends takes a bearing in the end bars 2 and 3 of the platen-frame. The platen end is cut away at 11 to enable the ratchet-wheel 8 to be secured to the shaft by the set-screw 10. Coöperating with the ratchet-wheel is a detent made in the form of a small wheel 12, pivotally mounted at the inner and forward end of a spring-arm 13, which is secured at 14 at the rear right-hand corner of the platen-frame, said detent-roller engaging with the notches or spaces between the teeth of the ratchet-wheel to hold the platen firmly while the printing is taking place in the usual way, and also coöperating with said ratchet-wheel is the usual line-space pawl 15, pivotally attached to a line-spacing lever, (not shown,) and by which pawl the platen is rotated step by step either one, two, or three spaces, according to the throw of the line-space lever and said pawl. Attached to the right-hand end bar 3 is a post 16, having an inwardly-projecting pin 17 to act as a stop for the forward movements of the line-space pawl, so as to prevent any overthrow of the platen by momentum beyond the desired number of teeth of the ratchet-wheel, as customary. The ratchet-wheel 8 is not attached to the end of the platen, as heretofore, but is attached only to the shaft or axle close to the end of the platen.

At the left-hand end of the platen is provided a circular head 18, which is attached thereto by three screws 19, and attached to said head by screws 20 are two brackets or ears 21, which form journal-bearings for the ends of a screw or worm shaft 22, which is arranged at right angles to the platen-shaft. The threads of the worm 22 engage with the threads of a worm-wheel 23, formed around

the periphery of a sleeve 24, surrounding the platen-shaft and attached thereto by means of a set-screw 25, which passes through a collar 26 and through said sleeve, which extends from the platen-head 18 to the end bar 2. At one end of the worm 22 is affixed a pinion 27, whose teeth are cut obliquely, so as to properly engage with the radial teeth of a crown-gear 28, that is secured by screws 29 upon a finger wheel or piece 30, preferably made cup-like in form and extending from the collar 26 to the head 18, so as to inclose the gearing located between these two parts. The left-hand end of the platen-axle passes through the head 18, the bore of the sleeve 24, and through the end bar 2, and at its extremity is provided with a knob 31, fixed by a set-screw 32, and the right-hand end of the platen-axle passes through the head or bearing 7, through the ratchet-wheel 8, and through the end bar 3, and is also provided at its extremity with a knob 33, secured in position by a set-screw 34.

When the line-space mechanism is actuated and the pawl 15 turns the ratchet-wheel 8, motion is thereby communicated to the shaft 9, and through the worm-wheel or threaded sleeve 24, attached thereto, and the worm or screw 22, the brackets 21, and the head 18, the platen is turned with the ratchet-wheel 8; but the platen is turned a distance equal to the distance between the centers of two or more spaces or notches of the ratchet-wheel, according to the throw of the line-space pawl, and during this rotation the spring-pressed detent 12 rides over a tooth or over teeth of the ratchet-wheel and takes a position in a new space or notch of said wheel at the conclusion of the line-spacing operation. Thus the feed of the paper at each throw of the line-space pawl must be equal at least to the distance between two adjacent notches of the ratchet-wheel. This is also true if the platen be rotated by means of either of the knobs 31 or 33, which always turn with the shaft and the ratchet-wheel. When it may be desired to rotate the platen variable distances, or through a distance less than that between two adjacent notches of the ratchet-wheel, or a distance greater than the same, but yet unequal to the sum of two or more notches on said ratchet-wheel, the finger piece or wheel 30 is turned, and by the rotation of this device the platen is turned the desired distance through the intervening mechanism without rotating its shaft and the worm-sleeve and ratchet-wheel carried thereby. When the handpiece 30 is turned, the crown-gear turning therewith operates to rotate the pinion 27 and the worm 22, which then feeds itself around the worm-wheel or worm-sleeve 24, (which remain stationary,) and this circular bodily movement of the worm through the supporting-brackets 21 and the head 18, attached to the platen, causes the platen to turn with the finger-piece and in either direction, according to the direction of movement of the latter, the bores of the heads 7 and 18

turning on the now stationary shaft. The gearing shown is so proportioned that the platen will make only one revolution to about six revolutions of the finger-wheel and crown-gear, but of course this proportion may be varied at pleasure. When either the line-spacing pawl or one of the knobs 31 33 is used to turn the shaft 9, the pressure of the shaft acts on the side of the worm 22 through the worm-wheel, and the force comes at such an angle to the worm that it does not rotate the same, and hence the worm, its pinion, the crown-gear, the finger-piece 30, the brackets, and the head 18 and the platen are all caused to turn together or solidly with the shaft.

From the foregoing it will be seen that I have provided a construction in which the platen may be rotated uniform predetermined distances by the line-spacing mechanism in the usual manner and a mechanism by which the platen may be turned in either direction variable distances independently of the line-spacing mechanism and without disturbing the same, said mechanism being always in readiness for instant action without first manipulating a lock, clutch, or the like, it being necessary simply to turn the finger piece or wheel in the direction in which the platen is to be turned and the platen travels at once therewith.

Any form or construction of line-spacing mechanism may be employed in lieu of that herein shown. Changes in detail, construction, and arrangement of the variable line-spacing mechanism may also be made without departing from the gist of my invention, it being apparent, for example, that the worm-wheel or circular series of worm-teeth may be formed directly on the shaft 9 itself instead of upon a sleeve thereof; but in such case the diameter of the shaft would have to be larger than usual, particularly at this locality.

Referring to Fig. 6, means are provided for maintaining the teeth or threads of the worm deeply and fully in contact or mesh with those of the worm-wheel, so as to avoid any backlash or lost motion between these parts. In this form of my invention the brackets or bearings 21^a, in which the worm is journaled, are connected together by a cross-bar 35, and said brackets are slotted at 36 to embrace the bodies of screws 37, fixed in the platen-head, so that the said brackets and the worm carried thereby are movably mounted instead of fixedly, as in the other views. A spring 38, caught under the head of a fixed pin 39, engages at its free ends with hooks 40, adjacent to the bar 35, and the said spring has a tendency to draw the frame comprising the brackets and the cross-bar toward the pin 39, and hence hold the worm in close mesh with the worm-wheel, and the aforesaid backlash or lost motion is thereby averted.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, as a means

for adjusting the paper in line-space direction, the combination of a platen, a line-spacing mechanism therefor, a train of gearing connected to one end of the platen for turning the latter variable line-space distances independently of the line-spacing mechanism, and a finger-wheel for operating said train of gearing.

2. In a type-writing machine, the combination of a platen, a platen shaft or axle, a ratchet-wheel attached to said shaft or axle whereby the platen is turned regular line-spacing distances through the rotation of said shaft, platen heads or bearings mounted on said shaft whereby the platen may be turned independently of said shaft, and a train of gearing connected to said shaft and to one of the platen-heads whereby when the power is applied to the shaft it is transmitted through said gearing to turn the platen with said shaft but when the power is applied directly to the gearing the platen may be rotated independently of the shaft and of its line-spacing ratchet-wheel.

3. In a type-writing machine, the combination of a platen, a platen shaft or axle, a platen-head at each end bearing on said axle, a line-spacing ratchet-wheel attached to said shaft, a line-spacing mechanism including a ratchet-detent, a worm-wheel attached to said shaft, a worm connected to one of the platen-heads and engaging said worm-wheel, a pinion on said worm, and a gear-wheel mounted axially of the platen-shaft engaging said pinion.

4. In a type-writing machine, the combination of a platen, a platen shaft or axle, a platen-head at each end mounted to turn on said shaft or axle, a line-spacing ratchet-wheel attached to said shaft, a detent, and a line-spacing pawl for said ratchet-wheel, a worm-wheel attached to said shaft, a worm for engaging said worm-wheel, bearings for said worm connected to one of the platen-heads, a pinion on said worm, and a crown-gear mounted axially of the shaft and engaging said pinion.

5. In a type-writing machine, the combination of a platen, a platen shaft or axle, a platen-head at each end mounted to turn on said shaft, a ratchet-wheel, a detent and a line-spacing pawl for said ratchet-wheel, a worm-wheel attached to said shaft, a worm arranged at right angles to said shaft and mounted to turn in brackets connected to one end of the platen, a pinion connected to said worm, a crown-gear wheel, and a finger-piece or wheel connected to the latter.

6. In a type-writing machine, the combination of a platen, a platen shaft or axle, a platen-head at each end mounted to turn on

said shaft, a ratchet-wheel, a detent and a line-spacing pawl for said ratchet-wheel, a worm-wheel sleeved on said shaft and attached thereto, a worm arranged at right angles to said shaft and mounted in bearings in brackets connected to one of the platen-heads, a pinion on said worm, a crown-gear wheel mounted on said sleeve, and a cup-like wheel or finger-piece also mounted on said sleeve and attached to said crown-gear.

7. In a type-writing machine, as a means for adjusting the paper in line-space direction, the combination with a platen and any suitable line-spacing mechanism, of a worm and worm-wheel for turning the platen variable distances independently of the line-spacing mechanism, and a finger-wheel arranged at the platen-axis for operating said worm in either direction.

8. In a type-writing machine, the combination with a platen and any suitable line-spacing mechanism, of a worm-wheel, a worm, a pinion thereon, and an actuating gear-wheel, for turning the platen variable distances independently of the line-spacing mechanism.

9. In a type-writing machine, the combination with a platen and any suitable line-spacing mechanism, of a worm-wheel attached to the platen shaft or axle, a worm for engaging said worm-wheel, spring-pressed bearings for said worm connected to one of the platen-heads, a pinion on said worm, and a gear-wheel mounted axially of the shaft and engaging said pinion.

10. In a type-writing machine, the combination with a cylindrical platen and a line-space wheel connected thereto and rotating simultaneously therewith, of a screw device arranged between the platen and the line-space wheel and serving to transmit the motion of the line-space wheel to the platen, and also adapted to cause alterations in the relative positions of platen and line-space wheel, and a finger-wheel for independently rotating said screw device.

11. In a type-writing machine, the combination with a platen and any suitable line-spacing mechanism, of a worm and worm-wheel for turning the platen variable distances independently of the line-spacing mechanism, and a finger-wheel for operating said worm and worm-wheel.

Signed at the borough of Manhattan, in the city, county, and State of New York, this 9th day of April, A. D. 1898.

CHARLES H. SHEPARD.

Witnesses:

ETHAL WELLS,
K. V. DONOVAN.